

RN02136

Serial number: 10/532,743

SUPPLEMENTAL AMENDMENT

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

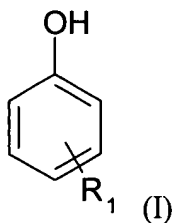
1-30 (Canceled)

31. (Currently amended) ~~The beads~~ Beads of a phenolic compound having a high hot solubility of at least 500 g/l at a reference temperature of 90°C, and a ~~large~~ difference of solubility which is at least doubled between its hot solubility in a first operational temperature in a fragmentation apparatus and cold solubility, ~~i.e. between a first operational temperature being the temperature in a fragmentation apparatus and in~~ a second operational temperature in the being the temperature of a cooling gas stream, said beads being both attrition resistant and porous.

32. (Currently amended) The beads according to claim 31, wherein the phenolic compound has a high hot solubility of at least 1000 g/l at a reference temperature of 90°C ~~and the difference of solubility being at least doubled between the two operational temperatures.~~

33. (Previously presented) The beads according to claim 32, wherein the difference of solubility is a multiple of at least 3 to 5 times between said two operational temperatures.

34. (Previously presented) The beads according to claim 31, wherein the phenolic compound has the following formula (I):



wherein:

R₁ represents a hydroxyl group, an amino group, an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms.

35. (Previously presented) The beads according to claim 34, wherein the phenolic compound is selected from hydroquinone, pyrocatechin, resorcin or m-aminophenol.

36. (Currently amended) The beads according to claim 31, having a particle size of between 100 μm and 3000 μm ~~in size, optionally between 500 μm and 1500 μm .~~

37. (Currently amended) The beads according to claim 31, having a size, expressed as the median diameter (d_{50}), of from 300 μm to 2000 μm , ~~optionally from 500 μm to 1500 μm .~~

38. (Currently amended) The beads according to claim 31, having an attrition resistance of between 90% and 100%, ~~optionally more than 98%.~~

39. (Currently amended) The beads according to claim 31, having an internal porosity, determined using a mercury porosimeter, of between 0.5 and 0.75, and having a bulk density (loose) of at least 0.3 ~~and optionally between 0.4 and 0.5.~~

40. (Previously presented) The beads according to claim 35, having a degree of compressibility of 5% to 10%.

41. (Currently amended) The beads according to claim 35, having an attrition resistance of ~~between 90% and 100%, optionally more than 98%.~~

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42. (Previously presented) The beads according to claim 35, wherein having an internal porosity, determined using a mercury porosimeter, of between 0.5 and 0.75 cm³/g.

43. (Cancelled)

44. (Previously presented) A process for preparing the beads defined in claim 31, comprising the steps of:

- a) preparing a hot concentrated aqueous solution of a phenolic compound, then,
- b) fragmenting the solution into droplets and cooling the droplets obtained in a stream of gas so that they solidify into beads, and, then,
- c) the beads obtained in step b) are recovered and dried.

45. (Currently amended) The process according to claim ~~44~~ 45, wherein step b) consists of passing the phenolic acid solution through a nozzle to form droplets, solidifying the latter by allowing them to fall in a tower with a counter-current of a cold gas, in order to obtain the beads.

46. (Currently amended) The process according to claim ~~45~~ 46, wherein step a) consists of preparing the aqueous solution of a phenolic compound at a concentration of at least 500 g/l, ~~optionally at least 1000 g/l~~.

47. (Currently amended) The process according to claim ~~46~~ 47, wherein the aqueous solution of step a) is at a temperature of between 80°C and 98°C, ~~optionally between 85°C and 95°C~~.

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48. (Currently amended) The process according to claim ~~45~~ 46, wherein in step b), the nozzle is a single-hole nozzle or a multi-hole nozzle having between 1 and 3000 holes, ~~optionally between 1 and 100 holes.~~

49. (Currently amended) The process according to claim ~~45~~ 46, wherein in step b), the nozzle has perforations whose diameter is between 50 and 2000 μm , ~~optionall between 200 and 600 μm .~~

50. (Currently amended) The process according to claim ~~48~~ 49, wherein the nozzle is a static nozzle, preferably a nozzle which is subjected to a high frequency electrical vibration system, ~~optionally at 100 to 10000 hertz.~~

51. (Currently amended) The process according to claim ~~44~~ 45, wherein in step b), the gas is nitrogen or oxygen-depleted air whose temperature is between -30°C and 30°C , ~~optionally between -10°C and 10°C .~~

52. (Currently amended) The process according to claim ~~45~~ 46, wherein the droplet has a residence time for the nozzle outlet to its arrival of between 1 and 10 seconds, ~~optionally between 3 and 5 seconds.~~

53. (Currently amended) The process according to claim ~~44~~ 45, wherein in step c), the beads are being recovered using a fluidized bed technique.

54. (Currently amended) The process according to claim ~~44~~ 45, wherein in step b) the beads are formed in a prilling tower and the beads of phenolic compound at the bottom of the prilling tower is:

10% to 50% by weight of water; and

50% to 90% by weight of phenolic compound.

55. (Currently amended) The process according to claim 54 ~~55~~, wherein the phenolic compound is hydroquinone and the composition at the bottom of the prilling tower is:

25% to 50% by weight of water;

50% to 75% by weight of phenolic compound.

56. (Currently amended) The process according to claim 44 ~~45~~, wherein in step c), the beads are subjected to a stream of air the temperature of which is in the range 20°C to 90°C, optionally in the range 60°C to 90°C.

57. (Currently amended) The process according to claim 56 ~~57~~, wherein drying is carried out using a fluidized bed technique.

58. (Currently amended) The process according to claim 57 ~~58~~, wherein the beads of phenolic compound after drying is as follows:

0.1% to 1% by weight of water; and

99% to 99.9% by weight of phenolic compound.

59. (Currently amended) The process according to claim 58 ~~59~~, in which the composition of the beads of phenolic compound after drying is as follows:

0.1% to 0.6% by weight of water;

99.4% to 99.9% by weight of phenolic compound.

60. (New) The beads according to claim 31, wherein the phenolic compound has a high hot solubility of less than 15 000g/l.

61. (New) The beads according to claim 36, having a particle size of between 500 μm and 1500 μm .

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62. (New) The beads according to claim 37, having a size, expressed as the median diameter (d_{50}), of from 500 μm to 1500 μm .
63. (New) The beads according to claim 38, having an attrition resistance of more than 98%.
64. (New) The beads according to claim 39, having a bulk density (loose) of between 0.4 and 0.5.
65. (New) The beads according to claim 41, having an attrition resistance of between 90% and 100%.
66. (New) The process according to claim 46, wherein step a) consists of preparing the aqueous solution of a phenolic compound at a concentration of at least 1000 g/l.
67. (New) The process according to claim 47, wherein the aqueous solution of step a) is at a temperature of between 85°C and 95°C.
68. (New) The process according to claim 48, wherein in step b), the nozzle is a single-hole nozzle or a multi-hole nozzle having between 1 and 100 holes.
69. (New) The process according to claim 49, wherein in step b), the nozzle has perforations whose diameter is between 200 and 600 μm .
70. (New) The process according to claim 51, wherein in step b), the gas is nitrogen or oxygen-depleted air whose temperature is between -10°C and 10°C.
71. (New) The process according to claim 52, wherein the droplet has a residence time for the nozzle outlet to its arrival of between 3 and 5 seconds.
72. (New) The beads according to claim 60, wherein the phenolic compound is hydroquinone.